APPLICANT:

SCRO30861 AFS ID 51-117-0051
Mecklenburg Cogeneration Facility
c/o UAE Power Operations Corporation
50 Tice Boulevard
Woodcliff Lake, New Jersey 07677

FACILITY LOCATION:

204 Co-gen Drive
Clarksville, Virginia
UTM Coordinates are ZONE: 17 EASTING: 720.8 km NORTHING: 4053.3 km

FACILITY DESCRIPTION:

Mecklenburg Cogeneration Facility is a supplier of electricity and steam covered by Standard Industrial Classification (SIC) Codes 4911, 4931, and 4961. The facility is permitted to construct and operate two 834.5 x 10^6 Btu/hr (heat input) coal and distillate oil-fired boilers, one distillate oil-fired auxiliary boiler with a capacity of 94.86 x 10^6 Btu/hr (heat input), a coal unloading, storage, and handling facility, and a 90,000-gallon distillate oil storage facility in the Prevention of Significant Deterioration (PSD) permit dated March 24, 2003.

EMISSIONS SUMMARY:

PLANTWIDE EMISSIONS SUMMARY [TONS PER YEAR]		
CRITERIA POLLUTANTS	POTENTIAL EMISSIONS	2002 ACTUAL EMISSIONS
Particulate Matter (PM_{10})	125.0	41.6
Nitrogen Oxides (NO_x)	2,179.3	1349.0
Sulfur Dioxide (SO_2)	987.8	486.0
Carbon Monoxide (CO)	1,425.3	942.9
Volatile Organic Compounds (VOC)	22.3	11.7
H_2SO_4	97.2	NA
Fluorides	4.3	1.7

Note: PM_{10} emissions potential emissions are from the two primary and auxiliary boilers.

TITLE V PROGRAM APPLICABILITY BASIS:

This facility has the potential to emit 2,179.3 tons per year of Nitrogen Oxides (NO_x). Due to this facility's potential to emit over 100 tons per year of a criteria pollutant, Mecklenburg Cogeneration Limited Partnership is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 9 VAC 5 Chapter 80 Article 1.

LEGAL AND FACTUAL BASIS FOR DRAFT PERMIT CONDITIONS:

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the Commonwealth of Virginia Federal Operating Permit Regulations for the purposes of Title V of the Federal Clean Air Act (9 VAC 5 Chapter 80 Article 1), and underlying applicable requirements in other state and federal rules. Applicable requirement means all of the following as they apply to emission units in a Title V source:

a. Any standard or other requirement provided for in the State Implementation Plan or the Federal Implementation Plan, including any source-specific provisions such as consent agreements or orders.

b. Any term or condition of any preconstruction permit issued pursuant to 9 VAC 5-80-10, Article 8 (9 VAC 5-80-1700 et seq.) of this part or 9 VAC 5-80-30 or of any operating permit issued pursuant to 9 VAC 5 Chapter 80 Article 5, except for terms or conditions derived from applicable state requirements or from any requirement of these regulations not included in the definition of applicable requirement.

c. Any standard or other requirement prescribed under these regulations, particularly the provisions of 9 VAC 5 Chapter 40 (9 VAC 5-40-10 et seq.), 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) or 9 VAC 5 Chapter 60 (9 VAC 5-60-10 et seq.), adopted pursuant to requirements of the federal Clean Air Act or under ' 111, 112 or 129 of the federal Clean Air Act.

d. Any requirement concerning accident prevention under ' 112(r)(7) of the federal Clean Air Act.

e. Any compliance monitoring requirements established pursuant to either ' 504(b) or ' 114(a)(3) of the federal Clean Air Act or these regulations.

f. Any standard or other requirement for consumer and commercial products under ' 183(e) of the federal Clean Air Act.

g. Any standard or other requirement for tank vessels under ' 183(f) of the federal Clean Air Act.

h. Any standard or other requirement in 40 CFR Part 55 to control air pollution from outer continental shelf sources.

i. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the federal Clean Air Act, unless the administrator has determined that such requirements need not be contained in a permit issued under this article.

j. With regard to temporary sources subject to 9 VAC 5-80-130, (i) any ambient air quality standard, except applicable state requirements, and (ii) requirements regarding increments or visibility as provided in Article 8 (9 VAC 5-80-1700 et seq.) of this part.

k. Any standard or other requirement of the acid deposition control program under Title IV of the Clean Air Act or the regulations promulgated thereunder.

l. Any standard or other requirement governing solid waste incineration under ' 129 of the Clean Air Act.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 9 VAC 5 Chapter 80 Article 1 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the state but is not federally-enforceable is identified in the draft Title V permit as such.

NOx BUDGET TRADING PROGRAM REQUIREMENTS

This section represents the NOx Budget Trading permit, as required by 9 VAC 5-140-200 A, for each NOx Budget source required to have e federally enforceable permit. A monitoring system has been installed for the NOx Budget unit (Boilers U1, U2) for monitoring NOx mass emissions in accordance with Subpart H of 40 CFR Part 75. The monitoring system has been certified under the procedures of 40 CFR Part 75 before the required date of May 1, 2003. Recording and reporting of the NOx emissions are done in accordance with the requirements of 9 VAC 5 Chapter 140, 40 CFR Part 75, and 40 CFR Part 97.

PERIODIC MONITORING

The 834.5 MMBtu/hr (heat input) Foster-Wheeler dry bottom, distillate oil and pulverized coal-fired primary boilers (Ref. U1 & U2) were constructed in 1991 (permitted May 18, 1990). Both primary boilers have identical pollutant emission limits and control equipment efficiencies, and are subject to the provisions of NSPS Subpart Da. The provisions of the PSD permit dated March 24, 2003 and 40 CFR 60, Subpart Da have adequate monitoring provisions to assure compliance with the NOx, SO_2, and opacity limits for the primary boilers. The PSD permit requires the permittee to install and operate a primary boiler stack gas flow monitor and software. The stack gas flow monitor will be used in conjunction with the previously installed CEMS to monitor and record actual NOx and SO_2 emissions. The real-time primary boiler stack emissions data will be used to demonstrate compliance to the 3-hour SO_2 limit. Periodic monitoring for particulates will use the COMS data as surrogate for PM-10 emissions. The allowable PM emission rate and opacity for the primary boilers is 0.02 lb/MMBtu and 10%, which is 66.6% and 50% of the allowable Da PM emission rate of 0.03 lb/MMBtu and 20% opacity, respectively. Since the permit limits for PM are much lower than the NSPS Da limits (66.6%), exceeding the NSPS limits would be the result of an upset condition. Hence, a stack test to demonstrate compliance to the PM emission limit from one of the two primary coal-fired boilers will be required per permit term. The hourly and annual VOC and CO permit limits were calculated from vendor guaranteed emissions rates ($lb/10^6$ Btu) and/or AP42 emission factors, and exceeding the permit limits (no NSPS Subpart Da limits for VOC or CO) would be the result of an upset condition (incomplete combustion) during normal operation and the current monitoring is adequate to alert the operators to an upset condition, and take corrective action to eliminate the excess emissions. The CO and VOC emissions will be minimized by requiring written operating procedures and maintenance schedules for pollution control equipment and emission units, and require written records of any corrective actions. Compliance to the VOC and CO annual emission limits will be demonstrated through records of fuel consumption. Additional periodic monitoring is not required for the primary boilers.

The H_2SO_4 mist and fluoride(s) emissions are pollutants regulated by the PSD permit program, and are due to sulfur and fluorine impurities in the coal. The H_2SO_4 mist and fluoride(s) emissions are controlled by a water-lime injection spray dryer with a design control efficiency of 92% for HF and 50% for H_2SO_4. The permit dated March 24, 2003 limits H_2SO_4 mist and fluoride(s) emissions from each primary boiler (Ref. U1, U2) to 266.5 lb/day and 11.7 lb/day, respectively.

The expected daily H_2SO_4 emissions from each primary boilers (Ref. U1, U2)) have been calculated using the bituminous coal boiler SO_3 emission factor of 0.7% of the total fuel sulfur per footnote b of Table 1.1-3 from AP42, Section 1.1, Bituminous Coal Combustion, dated 9/98, and adjusting the SO_3 emission rate and with the lime injection spray dryer's estimated H_2SO_4 control efficiency of 50% to be:

$$H_2SO_4 = \frac{834.5 \times 10^6 \text{ Btu/hr} \times (1.3\%S/100 \times 0.7\%/100) \times 24 \text{ hr/day} \times 50\%/100}{12{,}600 \text{ Btu/lb}} = 72.32 \text{ lb/day}$$

The controlled daily H_2SO_4 emissions from each of the primary boilers (Ref. U1, U2) would be in compliance with the allowable H_2SO_4 emission of 266.5 lb/day (72.32 lb/day < 266.5 lb/day).

The expected daily fluoride emissions (as HF) from each primary boilers (Ref. U1, U2)) have been calculated using the bituminous coal boiler HF emission factor (SCC #10100212) from AP42, Section 1.1, Bituminous Coal Combustion, dated 9/98 and with the lime injection spray dryer's fluoride control efficiency of 92% to be:

$$HF = \frac{834.5 \times 10^6 \text{ Btu/hr} \times 0.15 \text{ lb/ton} \times (100\% - 92\%)/100 \times 24 \text{ hr/day}}{2000 \text{ lb/ton} \times 12{,}600 \text{ Btu/lb}} = 9.54 \text{ lb/day}$$

The controlled daily HF emissions from each of the primary boilers (Ref. U1, U2) would be in compliance with the allowable fluoride emission of 11.7 lb/day (9.54 lb/day < 11.7 lb/day).

The auxiliary boiler (Ref. A) is used to supply steam to the host when steam is not available from the primary boilers. During calendar years 1999 and 2000, the auxiliary boiler did not operate. The PSD permit and 40 CFR 60 and Subpart Dc contain adequate monitoring provisions in order to assure compliance with the SO_2 (fuel certification), fuel restrictions (distillate oil), and opacity limits. The maximum allowable sulfur content of the distillate oil is 0.3% per shipment, which is 60% of the allowable sulfur content per NSPS Subpart Dc. The hourly and annual VOC and CO permit limits were calculated from vendor guaranteed emissions rates (lb/10^6 Btu) and/or AP42 emission factors. The NO_x emissions are limited by use of distillate fuel that contains little residual nitrogen. Excess emissions of NO_x, VOCs, or CO are generally the result of boiler upset conditions (incomplete combustion, etc.) during normal operation. The NOx, CO and VOC emissions will be minimized by requiring written operating procedures and maintenance schedules for pollution control equipment and emission units. In addition, the permittee shall maintain records of scheduled and unscheduled maintenance to the auxiliary boiler.

The permit limits the opacity from the auxiliary boiler to 10%, which is half of the NSPS Subpart Dc limit of 20%. The permittee shall make a weekly visual observation, outlined below, to demonstrate compliance to the opacity limit. Furthermore, the Title V permit includes the requirement to stack test the auxiliary boiler (Ref. A) once per permit term to demonstrate compliance to the permit=s PM-10 emission limit if the calculated annual fuel consumption exceeds

50% of the permitted annual fuel consumption (8,760 hr/yr @ maximum capacity). These limits are not expected to be exceeded and periodic monitoring requirement is considered satisfied by the fuel quality and throughput monitoring and recordkeeping requirements, and the periodic testing requirements included in the Title V permit. When required, the stack test results will be reduced and reported in accordance with 9 VAC 5-50-30.

The coal handling system (Ref. C1-C6b) emission units were constructed after October 24, 1974, are rated in excess of 200 tons/day, and include a coal crusher. Therefore the coal handling system is subject to the provisions of NSPS Subpart Y. The coal handling emission units whose particulate emissions are controlled by fabric filters have a 5% opacity limit. Visible emissions from coal handling equipment whose particulate emissions are fugitive shall not exhibit 20% or greater opacity. The permit does not limit hourly or annual particulate matter emissions from the coal handling system, but throughput is limited to 536,884 tons/yr. Compliance to the opacity limit for the coal handling equipment will be demonstrated by a weekly visual observation, outlined below, and monthly and annual coal throughput records.

The lime handling (Ref. LS1, LS2) and ash handling (Ref. A1-A8) emission units whose particulate emissions are controlled by fabric filters have a 5% opacity limit. Visible emissions from lime handling and ash handling equipment whose particulate emissions are fugitive shall not exceed 20% opacity, except for one 6-minute period per hour not to exceed 30% opacity. The lime handling, and ash handling emission units are not subject to any current NSPS or MACT Subparts. The permit dated March 24, 2003 does not limit hourly or annual emissions or annual throughputs. Compliance to the opacity limit for the lime handling and ash handling equipment will be demonstrated by a weekly visual observation, outlined below.

The 90,000-gallon distillate oil storage tank (Ref. FOST) is subject to the record keeping only requirements of NSPS Subpart Kb. The permittee is required to keep the dimensions and analysis of the storage capacity of the distillate oil storage tank. No periodic monitoring is required for the distillate oil storage tank.

Visual Observations

Monitoring of opacity will require the source to, at least one time per week, observe for the presence of visible emissions from the exhaust stack from the auxiliary boiler (Ref. A), coal handling system (Ref. C1-C6b), lime handling system (Ref. LS1, LS2), and ash handling system (Ref. A1-A8), when these emission units are operating. If visible emissions are observed, the permittee will have the option to take timely corrective action to resume operations without visible emissions or perform a VEE in accordance with 40 CFR 60, Appendix A, Method 9 to assure visible emissions' compliance. The permittee will keep a log of observations, any VEE recordings and any corrective actions. If any emission unit has not operated for any period during the week, this fact shall be noted in the individual log, and the visible emission observation for the idle emission unit will not be required.

REQUEST FOR VARIANCES OR ALTERNATIVES:

None

COMMENT PERIOD:

A public comment period is not required for minor permit modifications due to emissions trading per 9 VAC 5-80-210(B) and Condition XII.Z of the Title V permit.